

MORE MILES FOR TIRED IRON: THE APPLICATION OF ENGINEERED COMPRESSIVE RESIDUAL STRESSES IN AGING AIRCRAFT

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The Air Force inventory of airframes and engines is older than it has ever been. The current rate of fleet recapitalization dictates that the average age of the fleet will continue to increase for the foreseeable future. This means that a comprehensive engineering strategy must be developed to facilitate the safe and efficient sustainment of these aging systems. The increasing use of engineered residual compressive stresses may play an important role in this strategy.

In this talk an overview of the most common processes for inducing residual stresses will be provided. Some of the more prevalent distress and wear-out modes associated with aging aircraft will be discussed and typical data demonstrating the use of engineered residual stresses to combating these modes will be presented.